

PC



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/596,796	06/19/2000	Scott P. Tennican	50002.4USUI	3724
38878	7590	12/01/2004	EXAMINER	
DARBY & DARBY P.C. P.O. BOX 5257 NEW YORK, NY 10150-5257			LEROUX, ETIENNE PIERRE	
			ART UNIT	PAPER NUMBER
			2161	
DATE MAILED: 12/01/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/596,796

Applicant(s)

TENNICAN ET AL.

Examiner

Etienne P LeRoux

Art Unit

2161

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 June 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Art Unit: 2161

### ***Continued Examination***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/26/2004 has been entered.

### ***Claims Status***

Claims 1-27 are pending. Claims 1-27 are rejected.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 11, 12, 14, 15 and 17-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat No 5,809,495 issued to Loaiza (hereafter Loaiza) in view of US Pat No 5,873,075 issued to Cochrane et al (hereafter Cochrane).

#### **Claims 1, 12-14, 17 and 21-26:**

Loaiza discloses:

(a) storing each data object in a data store, each data object in the data store being separately referenced in each of the plurality of data structures [memory structures in main memory 104, Fig 1, col 3, lines 58-67]

Art Unit: 2161

(b) in response to a request for one data object, automatically determining one of the plurality of data structures best suited to retrieve the one data object and employing the determined data structure to locate and retrieve one data object from the data store [col 3, lines 50-57, Fig 2, 200, col 4, lines 40-45, col 6, lines 10-15, ]

(c) in response to a request for a plurality of related data objects, automatically determining another one of the plurality of data structures best suited to retrieve the plurality of related data objects and employing the determined other one of the plurality of data structures to locate and retrieve the plurality of related data objects from the data store[array data structure 500, Fig 5, col 6, lines 15-35, hash table data structure, Fig 7, col 6, lines 35-58, linked list data structure 600, Fig 6, col 6, line 66-col 7, line 7]

Loaiza discloses the elements of claim 1 as noted above.

Loaiza fails to disclose automatically deleting each reference to each deleted data object in the plurality of data structure types such that each subsequent request for each deleted data object will be unsuccessful.

Cochrane discloses automatically deleting each reference to each deleted data object in the plurality of data structure types such that each subsequent request for each deleted data object will be unsuccessful [col 4, lines 43-58]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Loaiza to include automatically deleting each reference to each deleted data object in the plurality of data structure types such that each subsequent request for each deleted data object will be unsuccessful as taught by Cochrane. The ordinarily skilled artisan would have been motivated to improve the invention of Loaiza per the above for the purpose of deleting child records depending from a deleted parent record [col 4, lines 43-58]

**Claims 2, 15 and 18:**

Loaiza discloses the elements of claim 1 as noted above.

Loaiza fails to disclose associating a parent object with each data object, the parent object identifying each reference for the associated data object in the plurality of data structures. Cochrane discloses associating a parent object with each data object, the parent object identifying each reference for the associated data object in the plurality of data structures [col 4, lines 1-10]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Loaiza to include associating a parent object with each data object, the parent object identifying each reference for the associated data object in the plurality of data structures as taught by Cochrane. The ordinary skilled artisan would have been motivated to modify Loaiza per the above for the purpose of establishing a relationship between two tables [col 4, lines 1-10]

**Claim 3:**

Loaiza discloses wherein the plurality of data objects have at least one related characteristic i.e., port [Fig 1, 101 reads on port because communications occur between the user and the DBMS, col 3, lines 1-35]

**Claim 4, 19 and 27:**

Loaiza discloses a hash data structure [Fig 7] and a list data structure [Fig 6].

**Claim 11:**

Loaiza discloses a relational database [col 2, lines 15-35]

**Claim 20:**

The combination of Loaiza and Cochrane discloses the elements of claim 17 as noted above. The combination of Loaiza and Cochrane fails to disclose a router, client cache, firewall and another server. Official Notice that a router, client cache, firewall and another server are well-known and expected in the art. The ordinarily skilled artisan would have been motivated to modify the combination of Loaiza and Cochrane to include a router, client cache, firewall and another server for the purpose of providing secure and fast communications over the Internet.

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Loaiza and Cochrane in view of US Pat No 5,787,452 issued to McKenna (hereafter McKenna).

**Claim 5:**

The combination of Loaiza and Cochrane discloses the elements of claims 1 and 4 as above. The combination of Loaiza and Cochrane fails to disclose wherein the data object is a collector object that is associated with a member object that identifies one or more other data objects that are referenced in a sub-tree below a reference to the requested collector object in the Trie data structure, the member object being employed to reference and retrieve each other data object when the collector object is retrieved. McKenna discloses wherein the data object is a collector object that is associated with a member object that identifies one or more other data objects that are referenced in a sub-tree below a reference to the requested collector object in the Trie data structure, the member object being employed to reference and retrieve each other data object when the collector object is retrieved [col 5, lines 17-37]. It would have been obvious to one of ordinary skill in the art to modify the combination of Loaiza and Cochrane to include wherein the data object is a collector object that is associated with a member object that identifies one or more other data objects that are referenced in a sub-tree below a reference to the requested collector object in the Trie data structure, the member object being employed to reference and retrieve each other data object when the collector object is retrieved as taught by McKenna for the purpose of providing a well-accepted mechanism for storing a sparse data set in a structure which only contains the information needed, and at the same time comprises information (i.e., pointers) about information which does not fit within the specific range of characters (i.e., trie entries). Each trie structure stores attribute information which is required. Sub-attribute structures can be shared or omitted, as needed, to

Art Unit: 2161

modify the combination of Loaiza and Cochrane per the above for the purpose of searching a database comprising an unbalanced structure [abstract].

**Claim 8:**

The combination of Chaudhuri, Cochrane, Shan, McKenna and Shadmon discloses the elements of claims 1, 4 and 7 as noted above. Furthermore, Shadmon discloses an IP address [Fig 17A]

**Claim 9:**

The combination of Chaudhuri, Cochrane, Shan, McKenna and Shadmon discloses the elements of claims 1, 4 and 7 as noted above. Furthermore, Shadmon discloses wherein the key represents a port [abstract].

**Claim 10:**

The combination of Chaudhuri, Cochrane, Shan, McKenna and Shadmon discloses the elements of claims 1, 4 and 7 as noted above. Examiner notes that in Shadmon wherein each segment is represented by at least one bit is inherent.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Loaiza and Cochrane and further in view of Pub No US 2002/0194167 issued to Bakalash et al (hereafter Bakalash).

**Claim 13:**

The combination of Loaiza and Cochrane discloses the elements of claims 1 and 11 as noted above.

The combination of Loaiza and Cochrane fails to disclose the data store is a data warehouse.

Bakalash '167 discloses the data store is a data warehouse [abstract]

Art Unit: 2161

preserve systems resources when processing. In the event that an attribute structure is not represented, the system employs the corresponding default attribute--that is, a default attribute contained within (or referenced by) the base attribute structure [col 5, lines 17-37].

**Claim 6:**

The combination of Loaiza, Cochrane and McKenna discloses the elements of claims 1, 4 and 5 as noted above.

Furthermore, McKenna discloses automatically enabling the member object to identify a new data object that is added to the sub-tree below the reference to the collector object [col 5, lines 30-35].

Claims 7-10 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Loaiza and Cochrane and further in view of US Pat No 6,175,835 issued to Shadmon (hereafter Shadmon).

**Claims 7 and 16:**

The combination of Loaiza and Cochrane discloses the elements of claims 1 and 4 as noted above. The combination of Loaiza and Cochrane fails to disclose identifying a key in the request for the data object, dividing the key into segments and employing each segment to search the Trie data structure and locate the requested data object. Shadmon discloses identifying a key in the request for the data object, dividing the key into segments and employing each segment to search the Trie data structure and locate the requested data object [abstract]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Loaiza and Cochrane to include identifying a key in the request for the data object, dividing the key into segments and employing each segment to search the Trie data structure and locate the requested data object as taught by Shadmon. The ordinarily skilled artisan would have been motivated to



It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Loaiza and Cochrane to include the data store is a data warehouse as taught by Bakalash '167.

The ordinarily skilled artisan would have been motivated to modify the combination of Loaiza and Cochrane per the above for the purpose of supporting on-line analytical processing operations to realize an improved informational database [abstract].

### ***Response to Arguments***

Applicant's arguments submitted 8/26/2004 have been considered but are moot in view of supra new ground(s) of rejection which are made in order to advance prosecution by avoiding unnecessary arguments concerning the semantics of "data structure." Nevertheless, it is expedient to consider the gist of applicant's arguments in order to further clarify the essence of the invention.

Applicant states in the first paragraph on page 11 "The Office Action has incorrectly described the claimed plurality of data structure types as indices. Although a data structure may include an index data, a data structure is a specialized container for data, not the data itself. Rather, they are structures for arranging data for subsequent access, such as a list data structure for storing data objects, a Trie data structure, and a hash data structure. See specification, page 5, line 30, and page 6, line 10. Also see dependent Claim 4." Examiner is not persuaded. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., list/Trie/hash data structure) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Furthermore, MPEP § 2106 states:

Art Unit: 2161

Office personnel are to give claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited in the claim are not read into the claim. *In re Prater*, 415F.2d 1393, 1404-05, 162 USPAQ 541, 550-551 (CCPA 1969). See also *In re Zletz*, 893 F.2d 319, 321-22, 13 USPQ2d 13201322 (Fed. Cir. 1989) ("During patent examination the pending claims must be interpreted as broadly as their terms reasonable allow ....

Interpreting "data structure" as broadly as reasonably possible, the following definition applies: *An organizational scheme, such as a record or array, that can be applied to data to facilitate interpreting the data or performing operations on it.*<sup>1</sup> Examiner maintains there are many references in Chaudhuri to "data structures" which comply with above definition. However, in order to advance prosecution by avoiding unnecessary arguments concerning the semantics of "data structure" supra new ground(s) of rejection are provided.

### Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: US Pat No 5,924,098 discloses hash data structures and list data structures.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Etienne LeRoux whose telephone number is (571) 272-4022. The examiner can normally be reached on Monday – Friday from 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic, can be reached on (571) 272-4023.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2100.

Etienne LeRoux

11/28/2004

  
SAFET METJAHIC  
ASSISTANT PATENT EXAMINER  
TECHNOLOGY CENTER 2100

<sup>1</sup> Microsoft Computer Dictionary Fifth Edition.